Thermo proposes that the term be accorded its broadest meaning, specifically "negatively charged ions," and thus disregards the inventors' special definition of "anions." However, Thermo's proposed construction of "anions" renders the claim invalid for failure to comply with 35 U.S.C. § 112. Such a construction cannot be correct. "[I]n order to be covered by the claims [ ] subject matter must be sufficiently described as the applicant's invention to meet the requirements of section 112." *Wang*, 197 F.3d at 1383.

In *Wang*, the parties agreed that the claim term "frame" applied to both "bit-mapped display systems" and "character-based display systems." *Id.* at 1381. The district court limited the claim term to "character-based display systems," and the Federal Circuit affirmed, holding that the only system "described and enabled in the [patent] specification and drawings uses character-based protocol." *Id.* at 1382. The court held that if the claims were read to encompass "bit-mapped display systems" the claims would be invalid for failure to satisfy 35 U.S.C. § 112, and such displays were, therefore, excluded from the scope of the claims. *Id.* at 1383.

A patent specification must contain "a written description of the invention." 35 U.S.C. § 112. To fulfill this requirement, the law requires that the specification provide sufficient detail to convey to a person of ordinary skill in the art that the inventors had possession of the full scope of the claimed invention at the time the patent application was filed. *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1480 (Fed. Cir. 1998); *see also, Tronzo v. Biomet, Inc.*, 156 F.3d 1154, 1159 (Fed. Cir. 1998). Although patent claims are not necessarily limited to the preferred embodiments, a narrow disclosure

limits the scope of the claims, *i.e.* claims cannot be broader than the disclosure supporting them:

> It is a truism that a claim need not be limited to a preferred embodiment. However, in a given case, the scope of the right to exclude may be limited by a narrow disclosure.
>
> * * *
>
> [T]he cases . . . do not stand for the proposition that an applicant can broaden his claims to the extent that they are effectively bounded only by the prior art. Rather, they make clear that claims may be no broader than the supporting disclosure, and therefore that *a narrow disclosure will limit claim breadth*.

Gentry Gallery, 143 F.3d at 1479-1480 (emphasis added).

Here, the specification describes separation of low molecular weight monomeric anions and nothing else. The patent provides no description of using the invention to separate larger, polymeric ions, oligonucleotides, RNA or DNA. If the claims are construed broadly enough to embrace analysis of such compounds—as Thermo proposes—they would be invalid for lack of adequate written description. *Gentry Gallery,* 134 F.3d at 1480. Thermo's proposed construction is wrong. The claims should instead be construed to preserve their validity and to reflect the invention actually made and described.

In the specification, the inventors of the '654 patent repeatedly described their "invention" as the separation and detection of low molecular weight monomeric anions. (JA12, 1:7-9 ("*The present invention* relates to the separation and detection of common anionic species."); JA12, 1:18-20 ("capillary zone electrophoresis (CZE) is a powerful and efficient method to separate small analytes"); JA 13, 4:32-35 ("*The present invention* utilizes capillary electrophoresis in conjunction with precise temperature control to achieve improved separation and detection of common inorganic and organic anionic species."); JA 14, 5:44-46 ("*The present invention* is particularly suited to detect such

common low molecular weight inorganic and organic ions as . . ."); JA 14, 5:50-51 ("these smaller anions have high mobilities in the carrier electrolyte") (emphasis added)). During prosecution, the inventors explicitly described "the invention" described and claimed in the patent as involving separation and detection of low molecular weight monomeric anions. (JA 124 – JA 125).

Where, as here, the inventors have explicitly defined their invention in the intrinsic record, the claims should be limited to the defined invention. *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 864 (Fed. Cir. 2004); *see also, Terlep v. Brinkmann Corp.*, 418 F.3d 1379, 1383 (Fed. Cir. 2005); *Microsoft Corp. v. Multi-Tech Systems, Inc.*, 357 F.3d 1340, 1348 (Fed. Cir. 2004); *Genzyme Corp. v. Transkaryotic Therapies, Inc.*, 346 F.3d 1094, 1099 (Fed. Cir. 2003). The '654 inventors' definition of the invention controls the construction of the claims. The '654 patent contains no mention of using capillary electrophoresis to separate and detect RNA, DNA, oligonucleotides and the like, despite such uses being described in the scientific literature at the time.[11] The reason for this glaring omission is clear: the inventors omitted any discussion of separating any anions other than low molecular weight monomeric anions because such analyses were not part of their invention.[12]

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[11] Not only was the use of capillary electrophoresis to separate large polymeric analytes disclosed in the prior art, at least one of the inventors of the '654 patent had published a paper on the use of capillary electrophoresis to separate DNA prior to the filing of the '654 patent application. Guttman *et al.*, "Prediction of Migration Behavior of Oligonucleotides in Capillary Gel Electrophoresis," 593 Journal of Chromatography 297 (1992) (A 50-A56). Notwithstanding this prior work, the inventors make no mention in the '654 patent using the invention to separate anything other than low molecular weight monomeric anions.

[12] A well-known contemporaneous treatise from the time of the invention notes that it would be "impossible" to separate DNA using free solution capillary electrophoresis (continued...)

Review of the '654 patent's description of the invention leads to the inescapable conclusion that the invention is limited to separation and detection of low molecular weight monomeric anions. *SciMed Life Sys. Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1342 (Fed. Cir. 2001); *see also, Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1370 (Fed. Cir. 2003). "Anions" should be construed accordingly.

B. "Capillary Electrophoresis"

Claim Term	Applera Construction	Thermo Construction
capillary electrophoresis	A chemistry technique which utilizes the differences in solute electrophoretic velocity to isolate the various components of a sample in a capillary.	Electrophoresis, or the movement of ions under the influence of an electric field, that takes place in a capillary tube.

"Capillary electrophoresis" is a technical term that is defined expressly in the intrinsic record. The '382 patent, incorporated by reference (JA 14, 5:10-11), sets forth the following definition: "Capillary electrophoresis is a chemistry separation technique which utilizes the differences in solute electrophoretic velocity to isolate the various components of a sample." (JA 204, 1:12-15). Where a patentee has acted as his or her own lexicographer and clearly defined a term, that definition should control. *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). Applera proposes that the Court adopt the inventors' definition, with the addition of the phrase "in a capillary" to more clearly distinguish the technique from other types of electrophoresis.

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such as that described in the '654 patent. Paul D. Grossman, *Capillary Electrophoresis Theory and Practice* (Grossman and Colburn eds., Academic Press 1992) at 23 ("Grossman") (A60). Paul Grossman and Joel Colburn were both employees of Applied Biosystems, now an operating unit of Applera, at the time of publication of this text. Dr. Grossman is still employed by Applera.

Thermo ignores the express definition set forth in the '382 patent incorporated by reference into the specification of the '654 patent, and instead makes up its own definition. The portions of the specification Thermo cites in the Joint Chart discuss but do not define "capillary electrophoresis." (D.I. 54 at 1). The incorporated '382 patent defines "capillary electrophoresis." Therefore, Applera's proposed construction of "capillary electrophoresis" based on the incorporated '382 patent definition should be adopted.

C. "Carrier Electrolyte"

Claim Term	Applera Construction	Thermo Construction
carrier electrolyte	Any electrically conductive fluid medium.	An electrically conductive fluid medium that carries or transports ions.

The '654 patent expressly defines "carrier electrolyte" as follows: "[b]y 'carrier electrolyte' or 'buffer', we mean any electrically conductive fluid medium for the sample." (JA 12, 2:56-57). Where a patentee has acted as his or her own lexicographer and clearly defined a term, that definition should control. *See Vitronics*, 90 F.3d at 1582.

Thermo proposes that "carrier electrolyte" be construed as "an electrically conductive fluid medium that carries or transports ions." Thermo's construction lacks support in the intrinsic evidence and it contradicts the inventors' express definition. The inventors' definition of carrier electrolyte should control and Applera's construction should therefore be adopted.

D. "Target Temperature"

Claim Term	Applera Construction	Thermo Construction
target temperature	A preselected temperature of the fluid in the capillary prior to introducing the sample into the capillary and applying an electrical current to the capillary.	A selected temperature.

The term "target temperature" appears in claim 11 of the '654 patent in the phrase "heating or cooling said capillary to a target temperature in the range of from 20° to 60° C.," and in the phrase "while maintaining the temperature in said capillary to within ±0.5° C. of said target temperature." Applera's proposed construction of "target temperature" reflects the meaning of the term as it is used in the specification of the '654 patent. "[T]he specification . . . is the single best single best guide to the meaning of a disputed term," *Phillips*, 415 F.3d at 1315 (citing *Vitronics*, 90 F.3d at 1582), and here the specification makes clear that the target temperature is a preselected temperature of the fluid in the capillary before introducing a sample into the capillary and commencing electrophoresis.

First, the specification of the '654 patent emphasizes the importance of the "target temperature," and its impact on the migration and separation of anions in the capillary, stating that proper selection of the "target temperature" can allow detection of anions at very low concentrations (JA 13, 3:21-28), or impact the order in which anions exit the capillary. (JA 14, 6:14-16). Similarly, the specification explains that maintenance of the temperature in the capillary is important to avoid changes in the viscosity of the carrier electrolyte and thereby maintain reproducibility. (*See e.g.,* JA 12, 2:30-34; JA 14, 6:3-5, 17-19). Indeed, the specification clearly teaches that the "target temperature" is the

preselected temperature of the fluid *in the capillary*, and that the invention involves maintaining the temperature in the capillary to within certain tolerances of that "target temperature." (JA 12, 2:26-29 ("[u]sing precise control of the temperature of the fluid *in the capillary column*, the migration speed and order of migration of the anions may be controlled to improve the selectivity of the process")) (emphasis added); (JA 12, 2:39-46 ("heating or cooling the capillary to a target temperature different from ambient temperature . . . while maintaining the temperature *in the capillary* to within ±0.5° C. of the target temperature") (emphasis added)).

The '382 patent, which the '654 patent incorporates by reference, explains how the "target temperature" is set and maintained. According to the '382 patent, the temperature of the chamber around the capillary is set at the target temperature and then the capillary equilibrates to the target temperature prior to performing electrophoresis:

> [A] set point ambient temperature is selected at step 342 for the capillary temperature as desired. This is done by the conventional method of monitoring the temperature of the air around the capillary tube and allowing sufficient time at step 344 for the heat transfer process to take place *until the capillary tube approaches the target temperature* and therefore the temperature in the capillary is very close to that of the surrounding air.

(JA 209, 11:65-12:5) (emphasis added). After achieving the target temperature, a sample is introduced and electrophoresis commences. In conjunction with electrophoresis, the temperature in the capillary is maintained by monitoring the resistance across the capillary. (JA 209, 12:6-34). The '654 patent also makes clear that the capillary is heated or cooled to a "target temperature" *before* a sample is introduced. (JA 12, 2:40-43). Applera's construction derives directly from this evidence, which makes plain that "target temperature" means "a preselected temperature of the fluid in the capillary prior

to introducing the sample into the capillary and applying an electrical current to the capillary."

In contrast, Thermo proposes that "target temperature" is "a selected temperature." Thermo's proposed construction begs the question: The selected temperature of what? Thermo's construction could apply to the temperature of the chamber surrounding the capillary, the capillary wall, the fluid in the capillary, or the room housing the device. One cannot tell. Not only is Thermo's construction vague and ambiguous, it provides no guidance as to what temperature is being selected, and will be unhelpful and potentially confusing to the jury. Moreover, Thermo's construction conflicts with the clear teachings of the '654 patent and the '382 patent. Thermo's construction should be rejected and Applera's construction, which arises directly from the teachings of the intrinsic evidence, should be adopted.

E. "Detecting Said Anions by Simultaneously Monitoring Said Sample at Two Different Wavelengths"

Claim Term	Applera Construction	Thermo Construction
detecting said anions by simultaneously monitoring said sample at two different wavelengths	Detecting the anions in the sample by simultaneously monitoring the absorption of two different wavelengths of light, one of which is not absorbed by the anions.	Detecting the anions by monitoring the sample at two different wavelengths at the same time.

The specification describes simultaneous monitoring of a sample at two wavelengths as an alternative embodiment of the method, and Applera's proposed construction comes directly from the description of that embodiment. Thermo's construction, which merely parrots the claim language, will not give the jury any guidance, and therefore should be rejected.

The '654 patent discloses as "another embodiment of the invention" simultaneous monitoring of the sample at two different wavelengths. (JA 13, 3:41-44). This embodiment is directed to detecting anions that absorb light strongly at one wavelength but not at another. (JA 13, 3:44-46). As a result of this characteristic, the simultaneous monitoring technique described produces an electropherogram with "unique signatures." (JA 13, 3:51-53). The patent specifically describes the detection of nitrogen-containing anions in a sample by simultaneously monitoring absorption at 210 and 254 nm, because nitrate and nitrite strongly absorb at 210, but not at 254 nm. When monitored in this manner, "a strong positive peak occurs at the lower wavelength, while a negative peak is simultaneously observed at the higher wavelength. These *unique signatures* permit ready identification of nitrogen-containing anions." (JA 13, 3:46-53) (emphasis added). Such monitoring involves the use of indirect photometric detection and direct photometric detection, both of which involve measurement of absorption by the sample components. (*See* JA 12, 1:43-49).

Thus, simultaneous monitoring of a sample at two wavelengths has two essential attributes: (1) the *absorption* of light is monitored; and (2) the two wavelengths consist of a wavelength at which the anion absorbs and a wavelength at which the anion does not absorb. The specification makes that clear:

> We have also found that simultaneous monitoring by the detector at two different wavelengths provides an additional means of identifying the anions of interest. The nitrogen-containing anions may be distinguished from other anions when *absorption* is simultaneously monitored at both 210 and 254 nm. For nitrate and nitrite, there is strong *absorption* at 210 nm but not at 254 nm so that *a positive peak is observed at the lower wavelength, but not at the upper wavelength*. The presence of positive peaks at 210 nm is thus an identifier of a nitrogen-containing anion in a sample. Additionally, the limits of detection are lower at the shorter wavelength for nitrate and nitrite anions (50 ppb at 210 nm). For other

> anions such as chloride and sulfate, limits of detection are lower at 254 nm (50 ppb). Thus, by simultaneously monitoring the sample at two different wavelengths, sensitivity of the process is enhanced.

(JA 14, 6:26-42) (emphasis added). The specification goes on to describe a run (Example 1) conducted with the SpectraPHORESIS 1000 instrument in which the UV/VIS scanning detector of the instrument simultaneously monitors the absorption of the sample at 210 and 254 nm. (JA 14, 6:60-7:44). The "unique signatures" produced by the use of the method in Example 1 are shown in Figures 1A-E.

During prosecution, the applicants confirmed that simultaneous monitoring of the sample at two wavelengths means monitoring absorption of light, and that the two wavelengths include one at which the anions do not absorb. In response to the examiner's rejection of the claim that issued as claim 11 of the '654 patent, the inventors distinguished the prior art on the basis that it "does not relate to an indirect *absorbance* detection system." (JA 122) (emphasis added). Thus, the applicants clearly distinguished the claim from the prior art on the basis that the claim at issue relates to detection of absorption of light, and more specifically to an *indirect* detection system, *i.e.*, one that includes monitoring of absorption at a wavelength not absorbed by the anions.

Thermo's proposed construction is a non-construction, merely repeating the words of the claim. Thermo seeks to leave itself free to argue, incorrectly, that the claim encompasses monitoring properties other than absorption at two wavelengths, such as the detection of laser-induced fluorescence that is performed in Applera's DNA analyzers. However, the '654 patent only describes simultaneous monitoring of two wavelengths by monitoring absorption by the sample at two wavelengths, one of which is not absorbed by the anions. Nothing more is described. There is no mention, much less any description

of any other mechanism of simultaneous monitoring, and certainly no mention of monitoring laser-induced fluorescence like that used in Applera's accused DNA analyzers. Thus, Thermo's construction, which is an improper attempt to construe the claim to embrace subject matter beyond that supported by the specification, must be rejected. *See e.g., Wang*, 197 F.3d at 1383 ("to be covered by the claims [the] subject matter must be sufficiently described as the applicant's invention to meet the requirements of section 112"). Unlike Thermo's construction, Applera's construction of this term remains true to what the inventors actually invented. *See Phillips*, 415 F.3d at 1316 (quoting *Renishaw*, 158 F.3d at 1250 ("the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented")). Accordingly, Applera's construction should be adopted.

F. "Maintaining the Temperature in Said Capillary to within ±0.5°C. of Said Target Temperature"

Claim Term	Applera Construction	Thermo Construction
maintaining the temperature in said capillary to within ±0.5°C. of said target temperature	Maintaining the temperature throughout the fluid in the capillary to within ± 0.5°C of the target temperature by monitoring electrical resistance in the capillary and maintaining the resistance at a constant level.	Maintaining the temperature in the capillary to within ±0.5°C of the target temperature.

The parties agree that the claim term "maintaining the temperature in said capillary to within ±0.5°C of said target temperature" means that the temperature of the fluid *in* the capillary—in other words, the temperature of the capillary's contents—must be maintained within ±0.5°C of the target temperature. Thermo's construction is silent, however, as to the extent of the capillary that must be maintained to within ±0.5°C of the target temperature or as to how such "maintaining" is carried out. The '654 patent

provides only one method of "maintaining" the temperature of the fluid in the capillary, and it makes clear that the temperature maintenance applies to the fluid throughout the capillary. Applera's construction derives from these clear teachings of the intrinsic evidence, and should therefore be adopted by the Court.

A person of ordinary skill in the art would understand the term "maintaining" to have its ordinary and customary meaning of "keeping in an existing state." Webster's Ninth New Collegiate Dictionary 718 (1985) (A65). Thus, the claim term means keeping the temperature existing inside the capillary to within ±0.5°C of the target temperature. However, there is no customary understanding in the field of capillary electrophoresis of how the temperature inside a capillary is maintained to within a cited temperature tolerance. Nor is there a customary understanding of how one measures the temperature *inside* a capillary. The '654 patent specification, however, provides a clear description as to how one "maintains" the temperature inside a capillary: by maintaining a constant resistance across the capillary after the capillary has been set at the target temperature.

As discussed above, the '654 patent discloses the importance of the target temperature (*see supra* at 8-10) and mechanisms for adjusting the temperature of the capillary tube and the air or other medium surrounding the capillary tube. (JA 209, 11:31-12:34). The '654 patent discloses only one method for maintaining the temperature inside the capillary by incorporating by reference the thermal control described in the '382 patent. (JA 14, 5:10-14). The '382 patent discloses "maintaining" a constant temperature in the capillary by monitoring electrical resistance in the capillary and maintaining the resistance at a constant level. (JA 206, 5:7-14; JA 207, 7:63-8:9; JA 209, 12:6-34). No other mechanism for "maintaining" the temperature in the capillary is

disclosed by either the '654 or '382 patent. Accordingly, "maintaining" should be construed to mean "monitoring electrical resistance in the capillary and maintaining the resistance at a constant level" as Applera proposes.

This construction is compelled by Federal Circuit precedent, including its recent decision in *Invitrogen Corp. v. Clontech Laboratories, Inc.*, 429 F.3d 1052 (Fed. Cir. 2005). In *Invitrogen*, two of the asserted claims were directed to a polypeptide that "has no detectable RNase H activity," and that "lacks RNase H activity." The Federal Circuit noted that these claim limitations could not be interpreted without reference to the patent specification because "each of the limitations begs the question of how one of skill in the art would understand the patent specification as describing *how to measure*" the claimed activity. *Id.* at 1076 (emphasis added). The specification of the patent in *Invitrogen* explained that the inventors undertook a specific gel assay to confirm that the claimed polypeptide "completely lacked" RNase H activity. Focusing on this teaching in the specification, the Federal Circuit held that "the patent unmistakably instructs one skilled in the art to measure RNase H activity, for purposes of [the claims], by using a gel assay." *Id.* at 1077. Accordingly, the Federal Circuit affirmed the district court's construction of the claims, under which the absence of activity "must be shown by the gel assay set forth in the written description of the '608 patent." *Id.* at 1079.

Here, like *Invitrogen*, the claims do not specify how a claimed magnitude (*i.e.*, the temperature inside the capillary) is measured. Like *Invitrogen*, the patent specification answers the question. Like *Invitrogen*, the claim term's requirement for determining the magnitude of a claimed element must be interpreted to be performed by the method set forth in the patent.

In *Invitrogen*, the Federal Circuit affirmed the district court's claim construction requiring absence of RNase H activity to be shown by the gel assay described in the patent. Here, the '654 patent teaches maintenance of the temperature in the fluid inside the capillary by monitoring and maintaining resistance of the capillary at a constant level. No other method of maintaining the temperature in the capillary is described, or even hinted at, much less enabled. Thus, "maintaining the temperature in said capillary to within ±0.5°C. of said target temperature" claim limitation must be interpreted to require, in part, monitoring electrical resistance in the capillary and maintaining the resistance at a constant level.

G. "Electroosmotic Flow"

Claim Term	Applera Construction	Thermo Construction
electroosmotic flow	The bulk flow of liquid due to the effect of an electric field on cations adjacent to anionic groups immobilized on the capillary wall.	Flow in a capillary under the influence of an electric field.

Electroosmotic flow is a technical term found in dependent claim 15 of the '654 patent. The '654 patent does not provide a definition of "electroosmotic flow," but the term is defined in the '382 patent, which the '654 patent incorporates by reference. The '382 patent provides:

> Electro-osmotic flow is the bulk flow of buffer from a first buffer vial 18 to a second buffer vial 19 through capillary 12 due to the shearing movement of a diffuse layer of cations past a more firmly held, dense layer, interacting with integral, anionic groups of the capillary wall.

(JA 204:1:27-32). Applera's construction of "electroosmotic flow" adopts the definition provided in the '382 patent with minor revision of application-specific terms of art and reference numerals. Where a patentee has acted as his or her own lexicographer and

clearly defined a term, that definition should control. *See Vitronics*, 90 F.3d at 1582, *see also, Phillips*, 415 F.3d at 1316.

Thermo's proposed construction of the term "electroosmotic flow" is "flow in a capillary under the influence of an electric field." This definition, which overlaps to a great extent with Thermo's definition of "capillary electrophoresis," is overbroad and does not provide a technically accurate definition of the term. Although Thermo cites two passages in the '654 patent as support for its proposed construction, the passages do not provide any definition of electroosmotic flow, and do not support Thermo's construction. Electroosmotic flow is not simply "flow in a capillary," it is the bulk flow of the carrier electrolyte. If one used an electroosmotic flow modifier to eliminate electroosmotic flow and then applied an electric field, ions that "flow in a capillary" without any "electroosmotic flow" would still fall within Thermo's definition of electroosmotic flow. Such a contradictory result cannot be correct.

Applera's proposed construction of electroosmotic flow is essentially identical to the definition of "electroosmotic flow" provided by the '382 patent, which is contemporaneous evidence of how persons of skill in the art would have understood the term at the time the application for the '654 patent was filed. Applera's proposed construction should be adopted.

H. "Electroosmotic Flow Modifier"

Claim Term	Applera Construction	Thermo Construction
electroosmotic flow modifier	A small cationic molecule that neutralizes the charge on the capillary wall.	Substance that modifies the electroosmotic flow.

"Electroosmotic flow modifier" is a technical term. Such technical terms are understood in the context of the specification from which they arise. *See Phillips*, 415 F.3d at 1315. Applera's proposed construction embraces the electroosmotic flow modifiers referred to in the '654 patent, proceeds from and agrees with the definition of electroosmotic flow articulated in the '382 patent, and tracks the classification of these electroosmotic flow modifiers in the contemporaneous technical literature.

As discussed above, the '382 patent defines electroosmotic flow as a phenomenon that occurs as a layer of cations moves over a second layer of cations bound to anionic groups bound to the capillary wall. The electroosmotic flow modifiers disclosed in the '654 patent act by neutralizing the negative charge on the capillary wall. The patent discloses the electroosmotic flow modifiers "diethylenetriamine (DETA) and aliphatic trimethyl ammonium halides or hydroxides such as tetradecyltrimethylammonium bromide (TTAB)." (JA 14, 5:40-42). Each of these chemicals is a small cationic molecule. Moreover, each binds to and neutralizes the anionic charge on a capillary wall. Indeed, the scientific literature of the day defined this class of electroosmotic flow modifiers precisely as Applera has: "small cationic molecules to neutralize the charge on the capillary wall." (Grossman at 114, A62).

Thermo proposes to construe electroosmotic flow broadly to mean a "substance that modifies the electroosmotic flow," which encompasses not only all substances that

reduce electroosmotic flow by any mechanism, but also encompasses substances that *increase* electroosmotic flow. In addition to describing the addition of small cationic molecules to the carrier electrolyte, as in the '654 patent, Grossman describes the use of "chemical derivitizing agents" such as trimethlychlorosilane to covalently block the charged silanol groups on the capillary surface, titrating the charge on the capillary surface by lowering the pH of the buffer, and adding to the buffer a polymer that adsorbs to the capillary wall. (*Id.*) The '654 patent says nothing about electroosmotic flow modifiers that employ the other approaches described in the contemporaneous technical literature. Moreover, although Thermo's proposed construction encompasses the use of substances that increase electroosmotic flow, the discussion in the specification of '654 patent is about decreasing or reversing electroosmotic flow, even to the point of reversing its direction. The specification states that "[t]he method of the invention may also be carried out by including an electroosmotic flow modifier in the carrier electrolyte which *controls* the speed and/or *direction* of the electroosmotic flow of the carrier electrolyte." (JA 12, 2:63-67; JA 14, 5:33-37) (emphasis added).

Again, Thermo hopes to expand the claims to embrace subject matter nowhere mentioned in the '654 patent. The '654 patent discloses examples of small cationic molecules that are added to the carrier electrolyte to reduce electroosmotic flow. It does not provide support for the use of *all* substances that modify electroosmotic flow, and thus the claim should not be construed as Thermo proposes. *See e.g., Wang,* 197 F.3d at 1383. Applera's construction, by contrast, defines electroosmotic flow modifiers in accordance with the invention actually described in the '654 patent and as understood by persons of skill in the art at the time the patent application was filed: small cations that

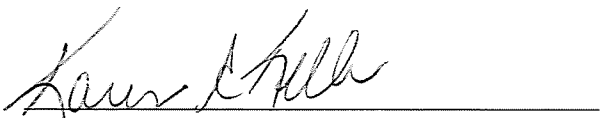
neutralize the negative charge on the capillary wall, a few of which are exemplified in the '654 patent. Accordingly, Applera's proposed construction of electroosmotic flow modifier should be adopted.

V. CONCLUSION

For the foregoing reasons, Applera respectfully requests that the Court adopt Applera's proposed constructions of the disputed terms of the '654 patent claims and reject Thermo's contrary constructions.

Dated: January 20, 2006

YOUNG CONAWAY STARGATT & TAYLOR, LLP



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CERTIFICATE OF SERVICE

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